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**REMARKS**

Claims 1-37 are pending in the present application. In the Office Action mailed August 2, 2004, the Examiner rejected claims 12, 13, 32, 33, and 35-37 under 35 U.S.C. §102(b) as being anticipated by Toth (USP 5,379,333). The Examiner next rejected claims 14-17 and 19 under 35 U.S.C. §103(a) as being unpatentable over Toth. Claim 18 was rejected under 35 U.S.C. §103(a) as being unpatentable over Toth, and further in view of Lavin et al. (USP 5,772,585). Claim 34 was rejected under 35 U.S.C. §103(a) as being unpatentable over Toth and further in view of Lavin et al. Claims 12-37 as well as the drawings were objected to. Applicant appreciates the Examiner's indication that claims 1-11 and 20-31 are allowable.

Regarding the objection to the figures, Applicant has amended the Specification to add those reference numerals identified by the Examiner as being included in the figures, but not mentioned in the application text. No new matter has been added.

Regarding the objection to claims 12-37, Applicant has amended claim 12 to add the term "tube" to precede "current". In this regard, claims 12-37 all call for "tube current profile". Applicant appreciates the Examiner's suggestion, but believes amending the claims to call for "x-ray tube current profiles" is unnecessary to define over the art. Moreover, as set forth in the Specification, the claimed invention is applicable with x-rays as well as gamma rays. As such, amending the claims to explicitly call for "x-ray tube current profiles" unnecessarily limits the scope of the claims.

Regarding the objection to claim 34, Applicant reminds the Examiner that claim 34 calls for a "diagnostic tube current" whereas claim 32 calls for a "tube current profile". As such, both claims do not call for a "tube current" as suggested by the Examiner. Claim 32 calls for "means for modifying a tube current profile..." On the other hand, claim 34 calls for "a diagnostic tube current" that is used to determine "the target image quality". In light of these distinctions, Applicant believes claims 32 and 34 to be in proper form as currently written. Withdrawal of the objection is requested.

Claims 12, 13, 32, 33, and 35-37 stand rejected under 35 U.S.C. §102(b) as being anticipated by Toth. Toth teaches a tube current modulation technique whereupon x-ray

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tube current is modulated as a function of gantry angle to reduce radiation exposure to a subject without significantly increasing image noise. See Abstract. Toth further teaches acquisition of scout data that is reconstructed into a scout image that may be used to allow an operator to locate slices with respect to patient anatomy to select appropriate x-ray tube current modulation profiles. Col. 4, ll. 56-62. In this regard, Toth teaches selection of tube current profiles that define operation of an x-ray tube in a manner tailored to reduce radiation exposure to sensitive organs of a the patient, such as the eyes. Col. 4, ll. 62-70. For instance, Toth teaches that it is desirable to limit exposure to the eyes and that "to compensate for this lower dose without increasing image noise, the x-ray tube current is increased above the prescribed amount when the gantry revolves the x-ray source to the back of the patient's head." Col. 5, ll. 1-4. As such, Toth clearly teaches compensating for low dose regions with application of higher than nominal x-ray dose in other regions. Toth teaches this variability in x-ray dose to avoid noise. In other words, Toth teaches a modulation profile that maintains image quality.

In contrast, the claimed invention is directed to an imaging technique that purposely recognizes that regions or volumes within a subject correspond to structures of low interest. In these regions of lesser diagnostic value, it is recognized that lower diagnostic quality is an acceptable tradeoff to lower x-ray dose to the subject. That is, not all regions or volumes of a subject are of equal diagnostic value. As such, it is not necessary for all regions or volumes to be reconstructed with the same diagnostic quality.

Simply, as it desirable to limit x-ray exposure to a subject, the claimed invention is directed to a variable modulation profile where regions or volumes corresponding to those regions of lesser import are subjected to less x-ray dose. Moreover, the x-ray dose is not automatically increased in other areas simply to maintain image quality consistent throughout the volume-of-interest (VOI). That is, those areas of elevated interest are subjected to higher x-ray flux than those areas identified as not being of diagnostic interest. As a result, the diagnostic quality for the areas of elevated interest exceeds that of those areas identified as not being of diagnostic interest.

Accordingly, Applicant respectfully believes the amendments made herein to claims 12 and 32 more clearly define the distinctions between the claimed invention and

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that taught by the cited reference. Specifically, the cited reference fails to teach or suggest a method of processing imaging data for a radiation emitting medical imaging device that includes acquiring imaging data of a subject, generating a set of projections for a VOI having a plurality of sub-volumes, acquiring a target noise index, generating a tube current profile according to the target noise index, enabling interactive adjustment of the generated tube current profile to convey a dose specific for each sub-volume in the VOI such that diagnostic quality is variable across the VOI.

Moreover, the art of record fails to teach or suggest a radiation emitting medical device having means for receiving scan parameters, means for adjusting the scan parameters automatically to generate a desired target image quality across a VOI for a patient, means for modifying a tube current profile based on the adjusted scan parameters to account for sub-volumes of elevated interest such that radiation dose to the sub-volumes of elevated interest exceeds that of other sub-volumes of the VOI, and means for scanning the patient using the modified tube current profile to reconstruct an image of the patient with image quality for the sub-volumes of elevated interest exceeding that of the other sub-volumes of the VOI. It is therefore believed that claims 12, 13, 32, 33, and 35-37 are patentably distinct from the art of record.

Regarding the rejection of claims 14-19 and 34 under 35 U.S.C. §103(a), Applicant respectfully disagrees with the Examiner with respect to the art as applied, but in light of each of the aforementioned claims depending from what is believed an otherwise allowable claim, Applicant does not believe that additional remarks are necessary and therefore requests allowance of claims 14-19 and 34 pursuant to the chain of dependency.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-37.

In response to the Examiner's Reasons for Allowance, Applicant believes that a separate Statement of Reasons for Allowance is unnecessary in the present case as the file history sufficiently sets forth the patentable distinctions of claims 1-11, 20-25, and 26-31. Moreover, the patentability of claims 1-11, 20-25, and 26-31 lies in each claim as a

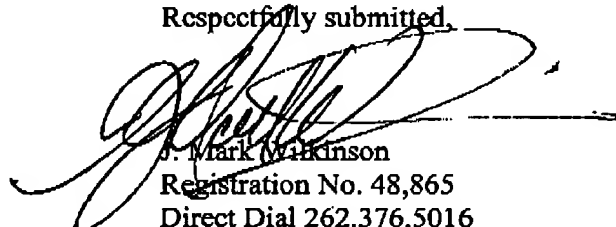
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whole. That is, a single particular element or feature of a claim does not define the claim's patentability, but rather, it is each of the elements and the interconnection therebetween that define that which is claimed. The claims cannot be considered to be limited in scope based on this brief statement by the Examiner. Further, the claims are not limited only to a particular figure set forth in the specification and must be read to cover embodiments of the invention not specifically described in the specification or shown in the figures. Additionally, the Examiner's paraphrasing of the claims may or may not be accurate. Applicant does not acquiesce to the accuracy of the Examiner's statements in the Reasons for Allowance.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,



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